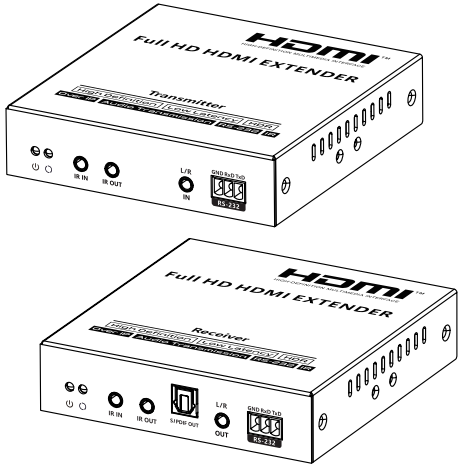
Disclaimer

The product name and brand name may be registered trademark of related manufactures. ™ and ® may be omitted on the user manual. The pictures in this user manual are just for reference. We reserve the rights to make changes without further notice to a product or system described herein to improve reliability, function or design.

User Manual

Full HD HDMI over IP EXTENDER



HIGH-DEFINITION MULTIMEDIA INTERFACE

The terms HDMI, HDMI High-Definition Multimedia Interface, HDMI Trade dress and the HDMI Logos are trademarks or registered trademarks of HDMI Licensing Administrator, Inc.

• Important Safety Instructions

1. To prevent electric shock, please ensure that all devices are properly grounded.
2. Do not place this device near or over a radiator or heat register, place the device in a well-ventilated area, do not block any ventilation openings.
3. Do not expose this device to rain or place it near water, any liquid that goes into the device may cause a failure, fire, or electric shock.
4. Do not place the device on an uneven or unstable surface, the device may fall resulting in a malfunction.
5. Never insert anything metallic into the open parts of this device, this may cause a danger of electric shock.
6. If a third-party power supply is used, please ensure that the power supply specifications meet the product requirements.

• Introduction

This is an HDMI over IP extender kit, including a transmitter and a receiver. With this device, HDMI signals can be transmitted uncompressed and low-latency over Cat6/6A/7 cable at 1080p@60Hz resolution. The transmission distance is up to 150 meters. This HDMI extender kit has features including HDMI loop out, bi-directional IR passthrough, RS-232 passthrough, and audio extraction through S/PDIF output on the receiver. It supports point-to-point connection or one-to-many connection through gigabit switch, and cascading of switches is also supported. This extender kit is a reliable video transmission and distribution solution which can be widely used in security monitoring, rail transit, broadcasting, smart cities, home theatre and other fields.

• Features

1. Adopting ipcolor PIXEL technology can realize uncompressed and low-latency transmission.
2. Support up to 1080p@60Hz resolution, including 1920x1200/1920x1080, backward compatible.
3. Video signals can travel up to 150 meters over CAT6 or higher network cable.
4. Support one-to-many connection through the gigabit switch, or switch cascade.
5. Support HDR10.
6. Support EDID Passback.
7. Support RS-232 passthrough.
8. With HDMI loop out on the trnasmitter.
9. Support bi-directional IR passthrough.
10. The transmitter has a 3.5 mm audio input for sound embedding, the receiver has an independent 3.5 mm and S/PDIF audio output.
11. Lightning protection, surge protection, ESD protection.

• Package Contents



Transmitter x1



Receiver x1



DC5V/2A x2



IR receiver extension cable x1



IR blaster extension cable x1



Mounting ear x4



Screw x10



User manual x1



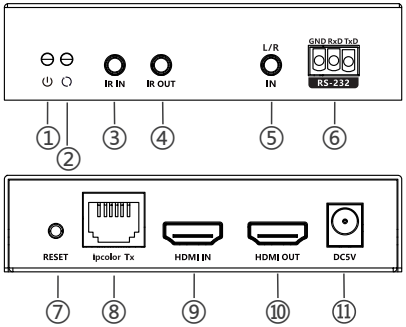
Terminal block x2

• Installation Requirements

Item	Description	Requirement
Signal source device	PC, DVD, NVR, etc. with HDMI port	HDMI cable≤5m
Cable	CAT6/6A/7, following standard IEEE-568B	CAT6/6A/7≤150m
Display device	TV, projector, LED screen, etc. with HDMI port	HDMI cable≤5m
Network switch	The switch(es) is required for one-to-many and switch cascading connections	Gigabit switch

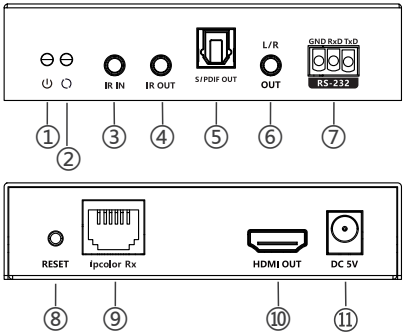
• Panel Description

1. Transmitter



①	Power indicator (blue)	1) **Light off**: No power supply 2) **Steady on**: The power is on 3) **Flash**: The factory settings have been restored
②	Data transmission indicator (orange)	1) **Light off**: The transmitter and the receiver have not established a connection 2) **Slow flash** (every 1 second): The transmitter and the receiver are connected but no video data transmission 3) **Quick flash** (every 200ms): The video signal is connecting 4) **Steady on**: The video data is transmitting
③	IR IN	Connect with IR receiver extension cable
④	IR OUT	Connect with IR blaster extension cable
⑤	L/R IN	Connect to the audio source device with 3.5mm stereo audio cable
⑥	RS-232 (GND/RxD/TxD)	Used for RS-232 passthrough and command control
⑦	RESET	1) Press to restart 2) Press and hold for 5 seconds to restore the factory settings, and then let go when the power indicator flashes
⑧	Ipcolor Tx (RJ45 port)	Connect with the network cable
⑨	HDMI IN	Connect with HDMI source device
⑩	HDMI OUT	Connect with local HDMI display device
⑪	DC5V	Connect with DC 5V/2A power adapter

2. Receiver



①	Power indicator (blue)	1) **Light off**: No power supply 2) **Steady on**: The power is on 3) **Flash**: The factory settings have been restored
②	Data transmission indicator (orange)	1) **Light off**: The transmitter and the receiver have not established a connection 2) **Slow flash** (every 1 second): The transmitter and the receiver are connected but no video data transmission 3) **Steady on**: The video data is transmitting
③	IR IN	Connect with IR receiver extension cable
④	IR OUT	Connect with IR blaster extension cable
⑤	S/PDIF OUT	Connect to the audio device with digital optical audio cable
⑥	L/R OUT	Connect to the audio device with 3.5mm stereo audio cable
⑦	RS-232 (GND/RxD/TxD)	Used for RS-232 passthrough and command control

⑧	RESET	1) Press to restart 2) Press and hold for 5 seconds to restore the factory settings, and then let go when the power indicator flashes
⑨	ipcolor Rx (RJ45 port)	Connect with the network cable
⑩	HDMI OUT	Connect with HDMI display device
⑪	DC5V	Connect with DC 5V/2A power adapter

• Installation Procedures

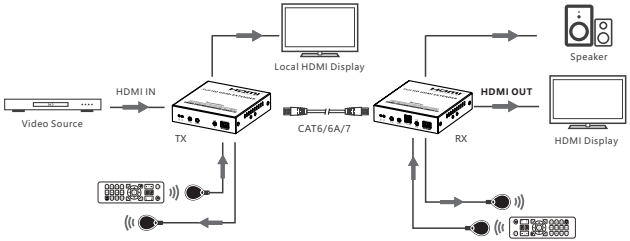
1. How to make a network cable

Follow the standard of IEEE-568B:

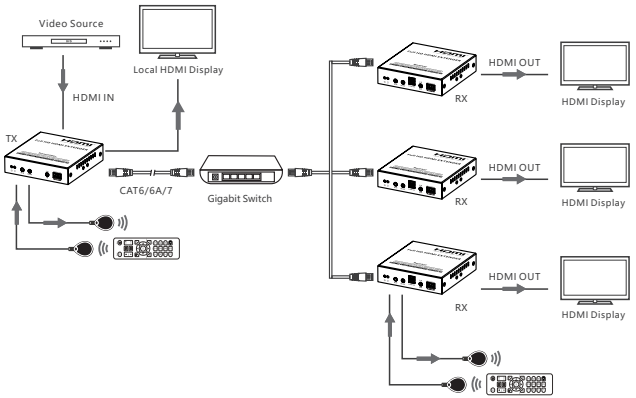
1-white and orange 2-orange 3-white and green 4-blue
5-white and blue 6-green 7-white and brown 8-brown

2. Connection Diagrams

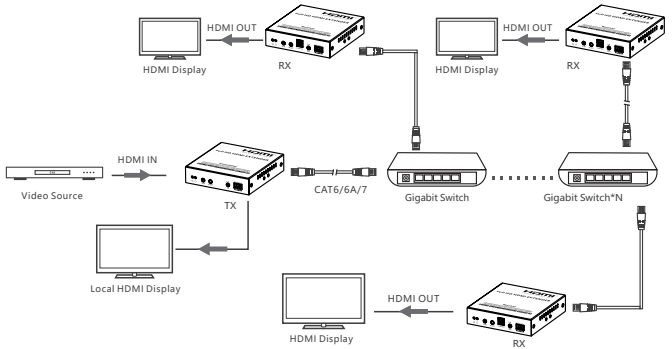
2.1 One-to-one connection:



2.2 One-to-many connection (through gigabit switch):



2.3 One-to-many connection (gigabit switch cascading):



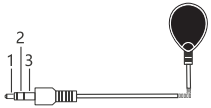
3. Connection Instructions

1) Connect the source device to the HDMI IN port of the transmitter with an HDMI cable, and connect the HDMI OUT port of the receiver to the display device with another HDMI cable.
2) If it's one-to-one connection, then use a network cable to connect the RJ45 port of the transmitter and receiver. If it is one-to-many connection, then use the gigabit switch as a bridge to connect the transmitter and the receivers with the network cables respectively.
3) If using HDMI loop out, connect the display device to the HDMI OUT port of the transmitter.
4) If you need another audio source instead of the HDMI audio source, connect the audio source to the L/R IN port of the transmitter with a 3.5mm stereo audio cable.
5) If you need to output additional audio sources from the receiver or extend the L/R stereo audio only, connect the S/PDIF OUT port of the receiver to the audio device with a digital optical audio cable and/or connect the L/R OUT port of the receiver to the audio device with a 3.5mm stereo audio cable.*
6) Plug the power supply into the devices to get started.

*

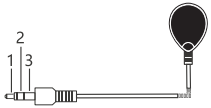
a. When the HDMI IN port of the transmitter is connected and the L/R IN port is not connected, the HDMI audio source can output from the HDMI OUT, S/PDIF OUT, and L/R OUT ports of the receiver simultaneously.
b. When the HDMI IN port and the L/R IN port of the transmitter is both connected, the L/R stereo audio source can output from the HDMI OUT, S/PDIF OUT, and L/R OUT ports of the receiver simultaneously.
c. When the L/R IN port of the transmitter is connected and the HDMI IN is not connected, it can be used as an audio extender, the L/R stereo audio source can only output from the L/R OUT port of the receiver.

4. IR User Guide



IR blaster

1. Power
2. IR Signal
3. Null



IR receiver

1. Power
2. IR Signal
3. Grounding

1) IR blaster extension cable should plug in the IR OUT port of the transmitter or receiver, IR receiver extension cable should plug in the IR IN port of the transmitter or receiver.
2) The emitter of the IR blaster extension cable should be as close as possible to the IR receiving window of the source device.
3) Point the remote control at the receiving head of the IR receiver extension cable to operate.

5. RS-232 control

If using the RS-232 function, insert the terminal block(s) into the serial port(s) and connect it to an external device. The three pins are GND, RxD, TxD. It can passthrough RS-232 commands and use commands to control the transmitter or receiver. The default configuration is as follows:
Baud rate: 9600
Date bits: 8
Stop bits: 1
Parity: None

Function	Control instruction code
Restore device factory setting	BA A5 11 00 00 11 33
Device restart	BA A5 10 00 00 10 30
Set baud rate of the device	Set the baud rate to 9600 BA A5 13 04 00 00 00 25 80 BC 67
	Set the baud rate to 19200 BA A5 13 04 00 00 00 4B 00 62 33
	Set the baud rate to 38400 BA A5 13 04 00 00 00 96 00 AD C9
	Set the baud rate to 57600 BA A5 13 04 00 00 00 E1 00 F8 5F
	Set the baud rate to 115200 BA A5 13 04 00 00 01 C2 00 DA 24

Note:

1) RS-232 commands must be separated by at least 200 milliseconds
2) If the RS-232 control instruction succeeds, it will return the control instruction code; If it fails, it will return the error code: BA A5 02 01 00 01 04 0C

• FAQ

Q: Why the data transmission indicator is off?
A:
1) Please check whether all equipment is powered on and the network cable is connected properly.
2) Try to change a network cable to connect.

Q: Why is the status indicator has been flashing slowly?
A:
1) Please check whether there is HDMI signal input for the TX.

2) Try to connect the signal source directly to the display device, or change the signal source and HDMI cable and test again.

Q: Why is the output image unstable?
A:
1) Check whether the length of the network cable connected from TX to RX is within the specified range.
2) The length of HDMI cable is recommended to be ≤5 meters.
3) Press the "reset" button on TX and RX to restart and reconnect.

• Technical Parameters

Item	Transmitter	Receiver
Video Signal		
Input interface	1x HDMI	1x RJ45
Output interface	1x HDMI 1x RJ45	1x HDMI
HDMI cable	≤5m	≤5m
Compatibility	HDMI 1.4 (HDR10)	
	HDCP 1.4	
Resolutions	1080p@24/25/30/50/60Hz, 720p@50/60Hz, 1024x768@60Hz, 1280x800@60Hz, 1280x960@60Hz, 1280x1024@60H, 1440x900@60Hz, 1600x900@60Hz, 1600x1200@60Hz, 1680x1050@60Hz, 1920x1200@60Hz, 480P@60Hz, 576P@50Hz, 1400x1050@60Hz, 1366x768@60Hz, 1360x768@60Hz, 1280x768@60Hz	
Connection types	One-to-one connection One-to-many connection Switch cascading	
Transmission distance	CAT6/6A/7≤150m	

Transmission latency	16ms-33ms	
Audio Signal		
Input interface	1x HDMI 1x 3.5mm L/R	1x RJ45
Output interface	1x RJ45	1x HDMI 1x S/PDIF 1x 3.5mm L/R
HDMI out	DTS-Audio/Dolby Digital 5.1/LPCM2.0	
S/PDIF out	LPCM 2.0/DTS-Audio/5.1/Dolby Digital 5.1	
3.5mm L/R output	PCM2.0	
Audio sampling rate	32kHz, 44.1kHz, 48kHz, 88kHz, 96kHz, 176kHz, 192kHz	
Audio bit depth	16bit, 24bit	
Command Signal		
IR interface	1x 3.5mm IR IN 1x 3.5mm IR OUT	1x 3.5mm IR IN 1x 3.5mm IR OUT
IR receiving range	≤5m	
IR frequency	20kHz~60kHz	
RS-232 (GND/RxD/TxD)	Default baud rate: 9600 support: 9600, 19200, 38400, 57600, 115200	
Power		
Power supply	DC5V/2A	DC5V/2A
Power consumption	< 5W	< 4W
Operating Environment		
Working temperature	-20℃~60℃	
Storage temperature	-30℃~70℃	

Humidity	0~90%RH (no condensation)	
Physical Properties		
Housing	Iron	
Weight	TX: 248g	RX: 248g
Color	Black	
Dimensions	106(L)*103(W)*25(H)mm	
Protection	ESD protection 1a Contact discharge level 2 (±4KV) 1b Air discharge level 3 (±8KV) Implementation of the standard: IEC61000-4-2	
	Lightning protection, surge protection	